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Test 1231: White 2-50 Field Boss Diesel

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NEBRASKA TRACTOR TEST 1231 — WHITE 2-50 FIELD BOSS DIESEL

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—625 rpm)								
47.02 (35.06)	2500	3.088 (11.690)	0.458 (0.279)	15.22 (2.999)	191 (88.1)	54 (12.2)	75 (23.8)	28.667 (96.803)
Standard Power Take-off Speed (540 rpm)—One Hour								
43.94 (32.76)	2159	2.780 (10.523)	0.441 (0.268)	15.80 (3.113)	189 (87.3)	54 (12.2)	75 (23.8)	28.675 (96.831)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
41.94 (31.28)	2624	2.684 (10.160)	0.446 (0.272)	15.63 (3.078)	181 (82.8)	54 (12.2)	74 (23.6)	....
0.00 (0.00)	2706	0.890 (3.370)	....	....	173 (78.3)	53 (11.7)	74 (23.1)	....
21.27 (15.86)	2662	1.686 (6.382)	0.553 (0.336)	12.62 (2.486)	176 (80.0)	53 (11.7)	74 (23.1)	....
47.36 (35.32)	2500	3.084 (11.674)	0.454 (0.276)	15.36 (3.026)	190 (87.5)	54 (12.2)	74 (23.3)	....
10.73 (8.00)	2680	1.273 (4.819)	0.828 (0.503)	8.43 (1.660)	174 (78.6)	54 (11.9)	74 (23.1)	....
31.71 (23.64)	2644	2.129 (8.059)	0.468 (0.285)	14.89 (2.934)	177 (80.6)	53 (11.7)	72 (22.2)	....
Av 25.50	**2636**	**1.958**	**0.535**	**13.03**	**178**	**53**	**74**	**28.700**
Av (19.02)		***(7.411)***	***(0.326)***	***(2.566)***	***(81.3)***	***(11.9)***	***(23.1)***	***(96.916)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th (H-1) Gear											
40.38 (30.12)	3159 (14.05)	4.79 (7.72)	2498	6.75	3.047 (11.533)	0.526 (0.320)	13.26 (2.611)	184 (84.2)	45 (7.2)	58 (14.2)	28.875 (97.507)
75% of Pull at Maximum Power—Ten Hours 5th (H-1) Gear											
33.74 (25.16)	2457 (10.93)	5.15 (8.29)	2633	4.90	2.502 (9.470)	0.517 (0.315)	13.49 (2.657)	177 (80.7)	41 (4.8)	48 (8.7)	29.082 (98.206)
50% of Pull at Maximum Power—Two Hours 5th (H-1) Gear											
23.38 (17.44)	1664 (7.40)	5.27 (8.48)	2655	3.51	1.953 (7.394)	0.583 (0.354)	11.97 (2.358)	175 (79.2)	47 (8.1)	58 (14.2)	28.865 (97.473)
50% of Pull at Reduced Engine Speed—Two Hours 6th (H-2) Gear											
23.47 (17.50)	1669 (7.43)	5.27 (8.48)	1765	3.48	1.613 (6.105)	0.479 (0.292)	14.55 (2.867)	178 (80.8)	46 (7.8)	57 (13.6)	28.770 (97.152)

MAXIMUM POWER IN SELECTED GEARS

29.19 (21.77)	5640 (25.09)	1.94 (3.12)	2650	14.85	2nd (L-2) Gear	179 (81.4)	41 (5.0)	48 (8.9)	28.780 (97.186)
39.16 (29.20)	5393 (23.99)	2.72 (4.38)	2502	13.52	3rd (L-3) Gear	182 (83.1)	44 (6.7)	57 (13.9)	28.890 (97.557)
41.11 (30.66)	4154 (18.48)	3.71 (5.97)	2501	8.80	4th (L-4) Gear	181 (82.8)	41 (5.0)	51 (10.6)	28.980 (97.861)
41.88 (31.23)	3271 (14.55)	4.80 (7.73)	2501	6.67	5th (H-1) Gear	182 (83.3)	41 (5.0)	51 (10.6)	28.980 (97.861)
41.62 (31.03)	2110 (9.39)	7.40 (11.90)	2500	4.43	6th (H-2) Gear	181 (82.8)	44 (6.7)	57 (13.9)	28.890 (97.557)
40.20 (29.98)	1369 (6.09)	11.02 (17.73)	2503	2.81	7th (H-3) Gear	181 (82.8)	44 (6.7)	57 (13.9)	28.890 (97.557)

LUGGING ABILITY IN RATED GEAR (5th (H-1))

Crankshaft Speed rpm	2501	2251	1999	1743	1495	1244
Pull—lbs (kN)	3271 (14.55)	3479 (15.48)	3683 (16.38)	3878 (17.25)	4007 (17.82)	3936 (17.51)
Increase in Pull %	0	6	13	19	22	20
Power—Hp (kW)	41.88 (31.23)	39.94 (29.78)	37.32 (27.83)	34.14 (25.46)	30.11 (22.46)	24.66 (18.39)
Speed—Mph (km/h)	4.80 (7.73)	4.30 (6.93)	3.80 (6.12)	3.30 (5.31)	2.82 (4.54)	2.35 (3.78)
Slip %	6.67	7.06	7.61	7.94	8.37	8.16

Department of Agricultural Engineering

Dates of Test: March 15 to 25, 1977

Manufacturer: WHITE FARM EQUIPMENT COMPANY, 2625 Butterfield Road, Oak Brook, IL 60521

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 51.8 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8377 **Fuel weight** 6.975 lbs/gal *(0.838 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 1.729 gal *(6.545 l)* **Drained from motor** 1.524 gal *(5.769 l)* **Transmission and final drive lubricant** Universal Tractor Hydraulic-Transmission fluid **Total time engine was operated** 46.5 hours

ENGINE Make Fiat Diesel **Type** 3 cylinder vertical **Serial No.** 584208 **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 3.94″ × 4.33″ *(100.0 mm × 110.0 mm)* **Compression ratio** 17 to 1 **Displacement** 158 cu in *(2592 ml)* **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** oil bath with centrifugal precleaner and dust unloader **Oil filter** full flow spin-on cartridge **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type standard **Serial No.** 516889 **Tread width** rear 48″ *(1219 mm)* to 76″ *(1930 mm)* front 52″ *(1321 mm)* to 80″ *(2032 mm)* **Wheel base** 75.6″ *(1920 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 27.1″ *(688 mm)* Vertical distance above roadway 29.2″ *(742 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 1.5 *(2.4)* second 2.2 *(3.5)* third 3.2 *(5.1)* fourth 4.2 *(6.8)* fifth 5.3 *(8.5)* sixth 8.0 *(12.9)* seventh 11.7 *(18.8)* eighth 15.1 *(24.3)* reverse 2.1 *(3.4)*, 7.6 *(12.2)* **Clutch** single plate dry disc operated by foot pedal **Brakes** dry contracting band operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 122″ *(3.10 m)* left 122″ *(3.10 m)* (on concrete surface without brake) right 134″ *(3.40 m)* left 134″ *(3.40 m)* **Turning space diameter** (on concrete surface with brake applied) right 250″ *(6.35 m)* left 250″ *(6.35 m)* (on concrete surface without brake) right 272″ *(6.91 m)* left 272″ *(6.91 m)* **Belt pulley** 1300 rpm at 2500 engine rpm diameter 9.8″ *(250 mm)* face 5.9″ *(150 mm)* **Belt speed** 3348 fpm *(17.0 m/s)* **Power take-off** 540 rpm at 2159 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CANOPY	dB(A)
Maximum Available Power—Two Hours	99.5
75% of Pull at Maximum Power—Ten Hours	98.5
50% of Pull at Maximum Power—Two Hours	97.0
50% of Pull at Reduced Engine Speed—Two Hours	95.0
Bystander in 8th (H-4) gear	87.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 14.9-28; 6; 18 *(120)*	Two 14.9-28; 6; 18 *(120)*
Ballast	—Liquid (each)	690 lb *(313 kg)*	None
	—Cast Iron (each)	390 lb *(177 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 6.50-16; 6; 40 *(280)*	Two 6.50-16; 6; 40 *(280)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	82 lb *(37 kg)*	None
Height of drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static weight with operator—rear		5145 lb *(2334 kg)*	2985 lb *(1354 kg)*
front		1735 lb *(787 kg)*	1570 lb *(712 kg)*
total		6880 lb *(3121 kg)*	4555 lb *(2066 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 154°F *(68°C)*. Six gears were chosen between 15% slip and 15 mph *(24.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1231.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

White 2-50 Field Boss Diesel

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